

## **IN THE CLAIMS**

This listing of the claim will replace all prior versions and listings of claim in the present application.

### **Listing of Claims**

1. (currently amended) A storage resource operation managing method in a storage network arranged by a node for transmitting an access request via a network to a storage and by a storage group constituted by at least one storage resource which receives said access request so as to execute a content of the access request, said storage resource operation managing method comprising the steps of:

acquiring at least one of a logical distance and a geographical distance from at least one of said node and said storage resources contained in said storage group, and said storage resources contained in said storage group,

wherein said logical distance is generated based on installation information regarding installation of each of said node and said storage resources, and

wherein said geographical distance is generated based on information of a physical location of each of said node and said storage resources;

acquiring from said node a requirement range with respect to at least one of said logical distance and said geographical distance; and

selecting at least one storage resource for executing the access request, ~~issued from~~ by said node, from said storage group, while at least one of said requirement range with respect to said logical distance and said requirement range with respect to said geographical distance is set as a selecting condition.

2. (previously presented) A storage resource operation managing method as claimed in claim 1, wherein as said storage resource selecting condition, at least one storage resource is selected which is located within said requirement range of at least one of said logical distance and said geographical distance.

3. (previously presented) A storage resource operation managing method as claimed in claim 2, wherein within at least one storage resource located in said requirement range, at least such one storage resource is selected whose at least one of said logical distance and said geographical distance is closer than those of other storage resources.

4. (previously presented) A storage resource operation managing method as claimed in claim 2, wherein within at least one storage resource located in said requirement range, at least such one storage resource is selected, the geographic distance of which is far from the geographical distance of another storage resource.

5. (currently amended) A storage resource operation managing method in a storage network arranged by a node for transmitting an access request via a network to a storage and by a storage group constituted by at least one storage resource which receives said access request so as to execute a content of the access request, said storage resource operation managing method comprising the steps of:

acquiring at least one of a logical distance and a geographical distance from at least one of said node and said storage resources contained in said storage group, and said storage resources contained in said storage group,

wherein said logical distance is generated based on installation information regarding installation of each of said node and said storage resources, and

wherein said geographical distance is generated based on information of a physical location of each of said node and said storage resources;

acquiring from said node a requirement range with respect to at least one of said logical distance and said geographical distance; and

selecting at least one storage resource for executing the access request, ~~issued from~~ by said node, from said storage group, while at least one of said requirement range with respect to said logical distance and said requirement range with respect to said geographical distance is set as a selecting condition,

wherein in such a case that the storage resource located within said requirement range is not present within said storage group, such a storage resource is selected whose at least one of said logical distance and said geographical distance is closer than those of another storage resource from said storage group.

6. (currently amended) A storage resource operation managing method in a storage network arranged by a node for transmitting an access request via a network to a storage and by a storage group constituted by at least one storage resource which receives said access request so as to

execute a content of the access request, said storage resource operation managing method comprising the steps of:

acquiring at least one of a logical distance and a geographical distance from at least one of said node and said storage resources contained in said storage group, and said storage resources contained in said storage group,

wherein said logical distance is generated based on installation information regarding installation of each of said node and said storage resources, and

wherein said geographical distance is generated based on information of a physical location of each of said node and said storage resources;

acquiring from said node a requirement range with respect to at least one of said logical distance and said geographical distance; and

selecting at least one storage resource for executing the access request, ~~issued from~~ by said node, from said storage group, while at least one of said requirement range with respect to said logical distance and said requirement range with respect to said geographical distance is set as a selecting condition,

wherein in such a case that the storage resource located within said requirement range is not present within said storage group, such a storage resource is newly added whose at least one of said logical distance and said geographical distance is located within said requirement range.

7. (previously presented) A storage resource operation managing method as claimed in claim 1, wherein with respect to at least a first storage resource contained in said storage group,

a requirement range with respect to a geographical distance from said first storage resource is acquired;

a second storage resource is selected from said storage group located within the requirement range with respect to said geographical distance from said first storage resource, or a second storage within the requirement range with respect to said geographical distance from said first storage resource;

copied data as to at least a data portion of such data stored in said first storage resource is stored into said second storage resource; and

in the case that an occurrence of a trouble of said first storage resource is detected, the access request issued from said node, which is transmitted to said first storage resource, is executed with respect to said copied data of the data stored in said second storage resource.

8. (previously presented) A storage resource operation managing method as claimed in claim 1, further comprising the steps of:

in such a case that a geographical location of said node is changed from a first setting position to a second setting position judging whether or not a logical distance defined from said node set at the second setting position up to such a storage resource which executes an access request transmitted by said node is located within said requirement range; and

moving data in said storage resource into another storage resource, when the logical distance from said second setting position is located is beyond said requirement range.

9. (currently amended) In a storage network which is arranged by a node for transmitting an access request via a network to a storage, a storage group constituted by at least one storage resource which receives said access request so as to execute a content of the access request, and a management server, said management server comprising:

means for acquiring at least one of a logical distance and a geographical distance from at least one of said node and said storage resources contained in said storage group, and said storage resources contained in said storage group,

wherein said logical distance is generated based on installation information regarding installation of each of said node and said storage resources, and

wherein said geographical distance is generated based on information of a physical location of each of said node and said storage resources;

means for acquiring from said node a requirement range with respect to at least one of said logical distance and said geographical distance; and

means for selecting at least one storage resource for executing the access request, issued from ~~from~~ by said node, from said storage group, while at least one of said requirement range with respect to said logical distance and said requirement range with respect to said geographical distance is set as a selecting condition.

10. (currently amended) In a network system including a plurality of storage resources and at least one of computers being coupled to said

storage devices via a network for using data stored in said storage resource,  
a storage resource managing method comprising the steps of:

acquiring storage resource information including at least one of a  
logical distance and a geographical distance between at least one of said  
computers and each of said storage resources,

wherein said logical distance is generated based on installation  
information regarding installation of each of said node and said storage  
resources, and

wherein said geographical distance is generated based on information  
of a physical location of each of said node and said storage resources;

acquiring an allocation request for assigning storage resource to said  
computer based on a requirement range with respect to at least one of said  
logical distance and said geographical distance; and

allocating, to said computer, a storage resource corresponding to said  
acquired storage resource information and said requirement range included in  
said allocation request storage resource.

11. (currently amended) A storage resource managing method  
according to claim 10, wherein the step of allocating comprises the step of:

if the storage resource located within said requirement range is not  
present, allocating at least one storage resources ~~unsatisfied with~~ resource  
that does not satisfy said requirement range based ~~that on the~~ on the acquired  
storage resource information.

12. (currently amended) A storage resource managing method according to claim 11, wherein ~~said the allocated at least one storage resource that does not satisfy said requirement range is a storage resource wherein a difference to said computer is that the gap between information regarding a said storage device information of said~~ forming the allocated at least one storage device resource and said requirement range is smaller than a difference gaps between information regarding said other storage device information of devices forming other storage devices resources that do not satisfy said requirement range.

13. (currently amended) A storage resource managing method according to claim 11, wherein at least one of said logical distance and said geographical distance of ~~said the allocated at least one storage resource is closer than those of said the other storage device resource that does not~~ satisfy said requirement range.

14. (currently amended) A storage resource managing method according to claim 11, wherein at least one of said logical distance and said geographical distance of ~~said the allocated at least one storage resource is farther than those of said the other storage device resource that do not satisfy~~ said requirement range.

15. (currently amended) A storage resource managing method according to claim 11, wherein the step of allocating comprises the step of:

if the storage resource located within said requirement range is not present, adding at least one of new storage resources that satisfy said requirement range and allocating at least one of said new storagesstorage resources.

16. (currently amended) A storage resource managing method according to claim 10, further comprising the steps of:

if a geographical location of said computer is changed from a first location to a second location, judging whether or not a logical distance between said computer in said second location and said ~~storage-allocated~~ storage resource is within said requirement range;

if said logical distance between said computer is said second location and said allocated storage resource is beyond said requirement range, adding a storage resource that ~~satisfy with~~ satisfies said requirement range; and moving data to said the added storage device ~~which is added~~ resource.

17. (new) A storage resource operating managing method according to claim 1, wherein said installation information includes an operation ratio, a storage capacity, a rotation per minute of disk, an access time in disk, a packet response time, and a hop number.

18. (new) A storage resource operation managing method according to claim 1, wherein said information of said geographical distance is based on a latitude and a longitude of each of said node and storage resources.